

# Saima Shahid

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Donald Danforth Plant Science Center  
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## **EDUCATION**

- 2017                      **Ph.D., Plant Biology**  
Penn State University, University Park, PA, USA  
Advisor: Michael J. Axtell
- 2009                      **M.S., Biochemistry and Molecular Biology**  
University of Dhaka, Dhaka, Bangladesh  
Advisor: Zeba I. Seraj
- 2008                      **B.Sc. (Honors), Biochemistry and Molecular Biology**  
University of Dhaka, Dhaka, Bangladesh

## **PROFESSIONAL EXPERIENCE**

- 08/2019 – present      **Simons / LSRF Postdoctoral Fellow, Donald Danforth Plant Science Center.** PI: Dr. R. Keith Slotkin  
Project: *Mechanism of de novo identification and silencing of naïve transposable elements in plant genomes*
- 08/2018 – 07/2019      **Postdoctoral Associate, Donald Danforth Plant Science Center.** PI: Dr. R. Keith Slotkin  
Project: *Mechanism of de novo identification and silencing of naïve transposable elements in plant genomes*
- 12/2017 – 07/2018      **Postdoctoral Researcher, Ohio State University**  
PI: Dr. R. Keith Slotkin  
Project: *Investigating the epigenetic component in Soybean aphid virulence against resistant host plants*
- 06/2010 - 07/2011      **Research Associate, University of Dhaka, Bangladesh**  
PI: Dr. Zeba I. Seraj  
Project: *Expression pattern of salt-inducible genes in rice landraces*
- 01/2010 - 02/2011      **Molecular Biologist/Bioinformatician, Jute Genome Project, Dhaka, Bangladesh**  
Project in collaboration with University of Dhaka, University of Hawaii at Manoa, and Bangladesh Jute Research Institute  
PI: Dr. Maqsoodul Alam  
Project: *Annotation of C. olitorious microRNAs and their targets*
- 06/2009 - 12/2009      **Research Associate, University of Dhaka, Bangladesh**  
PI: Dr. Zeba I. Seraj  
Project: *Analysis of cis-elements in stress-inducible plant promoters*

## **AWARDS & HONORS**

- 2019 - 2022 Simons Fellow of the Life Science Research Foundation (\$186,000)
- 2019 CSTM summer travel award, Donald Danforth Plant Science Center (\$1000)
- 2019 Best poster award, Donald Danforth Plant Science Center Annual Science Retreat
- 2019 ASPB Plantae Fellow
- 2018 Penn State Nominee for Northeastern Association of Graduate Schools doctoral dissertation award in Agricultural, Biological and Health Sciences
- 2017 Travel stipend, Huck Institutes of the Life Sciences, Penn State University (\$750)
- 2017 Department of Biology travel grant, Penn State University (\$250)
- 2014 J. Ben & Helen D. Hill Memorial Fund Award, Penn State University (\$1000)
- 2013 Department of Biology Travel grant, Penn State University (\$250)
- 2011 Braddock Graduate Scholarship, Penn State University (\$2500)
- 2011 Funds for Excellence in Graduate Recruiting Award, Penn State University (\$2500)
- 2009 Scholarship for academic excellence in B.Sc. Honors, University of Dhaka
- 1998 - 2000 Bangladesh Government Merit Scholarship

## **PUBLICATIONS**

### ***Google scholar profile***

<https://scholar.google.com/citations?user=lez4bclAAAAJ&hl=en>

14. **Shahid S**, Slotkin RK. The current revolution in transposable element biology enabled by long-read sequencing. *Current Opinion in Plant biology* 54, 49-56.
13. Yang Z, Wafula EK, Kim G, **Shahid S**, McNeal JR, Ralph PE, Timilsena PR, Yu W, Kelly E, Zhang H, Person TN, Altman NS, Axtell MJ, Westwood JH, dePamphilis CW (2019) Stolen genes in parasitic plants: convergent horizontal transfer and crosstalk of mobile nucleic acids. *Nature plants*. DOI:10.1038/s41477-019-0458-0
12. Choudury S, **Shahid S**, Cuerda-Gil D, Panda K, Cullen A, Ashraf QUA, Sigman MJ, McCue AD, Slotkin RK (2019) The RNA export factor ALY1 enables genome-wide RNA-directed DNA methylation. *The Plant Cell* 31(4), 759-774. DOI:10.1105/tpc.18.00624\*\*  
 \*\*Research highlighted in *The Plant Cell*, DOI: 10.1105/tpc.19.00138
11. **Shahid S**, Kim G, Johnson NR, Wafula EK, Wang F, Coruh C, Bernal-Galeano V, Phifer T, dePamphilis CW, Westwood JH and Axtell MJ (2018) MicroRNAs from the parasitic plant *Cuscuta campestris* target host messenger RNAs. *Nature* 553, 82-85. DOI:10.1038/nature25027\*\*  
 \*\*Research highlighted in *Nature Reviews Genetics*, DOI: 10.1038/nrg.2018.3  
 \*\*Research spotlighted in *Molecular Plant*, DOI: 10.1016/j.molp.2018.02.004  
 \*\*Commentary in *Non-coding RNA investigation*, DOI: 10.21037/ncri.2018.07.01  
 \*\*Recommended by *F1000 Prime*, DOI:10.3410/f.732394304.793541780

10. Islam MS, Saito JA, Emdad EM, Ahmed B, Islam MM, Halim A, Hossen QM, Hossain MZ, Ahmed R, Hossain MS, Kabir SM, Khan MS, Khan MM, Hasan R, Aktar N, Honi U, Islam R, Rashid MM, Wan X, Hou S, Haque T, Azam MS, Moosa MM, Elias SM, Hasan AM, Mahmood N, Shafiuddin M, **Shahid S**, Shommu NS, Jahan S, Roy S, Chowdhury A, Akhand AI, Nisho GM, Uddin KS, Rabeya T, Hoque SM, Snigdha AR, Mortoza S, Matin SA, Islam MK, Lashkar MZ, Zaman M, Yuryev A, Uddin MK, Rahman MS, Haque MS, Alam MM, Khan H, Alam M (2017) Comparative genomics of two jute species and insight into fiber biogenesis. *Nature plants* 3, 16223. DOI:10.1038/nplants.2016.223
9. **Shahid S\***, Begum R\*, Razzaque S, Jesmin, Seraj ZI (2016) Variability in amylose content of Bangladeshi rice cultivars due to unique SNPs in *Waxy* allele. *Journal of Cereal Science* 71, 1-9. \*Equal contribution. DOI:10.1016/j.jcs.2016.07.006
8. Coruh C, Cho SH, **Shahid S**, Liu Q, Wierzbicki A, Axtell MJ (2015) Comprehensive annotation of *Physcomitrella patens* small RNA loci reveals that the heterochromatic short interfering RNA pathway is largely conserved in land plants. *The Plant Cell* 27(8), 2148–2162. DOI:10.1105/tpc.15.00228
7. Kwok CK, Ding Y, **Shahid S**, Assmann SM, Bevilacqua PC (2015) A stable RNA G-quadruplex within the 5'-UTR of *Arabidopsis thaliana* ATR mRNA inhibits translation. *Biochemical Journal* 467(1), 91–102. DOI:10.1042/BJ20141063
6. Coruh C, **Shahid S**, Axtell MJ (2014) Seeing the forest for the trees: annotating small RNA producing genes in plants. *Current Opinion in Plant Biology* 18, 87–95. DOI:10.1016/j.pbi.2014.02.008
5. **Shahid S**, Axtell MJ (2013) Identification and annotation of small RNA genes using ShortStack. *Methods* 67(1), 20–27. DOI:10.1016/j.ymeth.2013.10.004
4. *Amborella* Genome Project (including **Shahid S** and Axtell MJ) (2013) The *Amborella* genome and the evolution of flowering plants. *Science* 342(6165), 1241089. DOI:10.1126/science.1241089\*\*  
 \*\*Research perspective in *Science*, DOI:10.1126/science.1248709  
 \*\*Recommended by *F1000 Prime*, DOI: 10.3410/f.718214247.793492833, 10.3410/f.718214247.793491231, 10.3410/f.718214247.793489834
3. Azad A, **Shahid S**, Noman N, Lee H (2011) Prediction of plant promoters based on hexamers and random triplet pair analysis. *Algorithms for Molecular Biology* 6(1), 19. DOI:10.1186/1748-7188-6-19
2. Lisa LA, Elias SM, Rahman MS, **Shahid S**, Iwasaki T, Hasan AM, Kosuge K, Fukami Y, Seraj ZI (2011) Physiology and gene expression of the rice landrace Horkuch under salt stress. *Functional Plant Biology* 38(4), 282–292. DOI:10.1071/FP10198
1. **Shahid S**, Elias SM, Biswas S, Seraj ZI (2010) READS-a resource for plant non-coding regulatory sequence analysis. *Plant Tissue Culture and Biotechnology* 20(2), 211–223. DOI:10.3329/ptcb.v20i2.6916

## **INVITED TALKS**

- 2019 3<sup>rd</sup> annual MU Plant research symposium, University of Missouri, Columbia, MO
- 2019 3<sup>rd</sup> annual Bioinformatics and Beers, Donald Danforth Plant Science Center, St. Louis, MO
- 2017 14<sup>th</sup> World congress of Parasitic Plants, Pacific grove, CA
- 2017 Annual meeting of Northeastern section of American Society of Plant Biologists, Yale University, New haven, CT
- 2016 Annual meeting of American Society of Plant Biologists, Austin, TX
- 2014 Annual meeting of American Society of Plant Biologists, Portland, OR
- 2010 6th International Plant Tissue Culture & Biotechnology Conference, Dhaka, Bangladesh

## **CONTRIBUTED TALKS**

- 2017 Department of Molecular Genetics, Ohio State University, Columbus, OH
- 2015 Plant biology seminar, Penn State University, University Park, PA

## **POSTER PRESENTATIONS**

- 2019 Gordon Research Conference – Epigenetics, Holderness, NH
- 2019 Annual Science Retreat, Donald Danforth Plant Science Center, Potosi, MO
- 2017 Graduate exhibition, Penn State University, University Park, PA
- 2015 Annual meeting of American Society of Plant Biologists, Minneapolis, MN
- 2015 GWIS 94th Annual Meeting and Science Symposium, Penn State University, University Park, PA
- 2015 20<sup>th</sup> Penn State Plant Biology symposium, University Park, PA
- 2014 Bioinformatics and Genomics Retreat, Huck Institutes of the Life Sciences, Penn State University, University Park, PA
- 2013 Genome Informatics Meeting, Cold Spring Harbor Laboratory, NY

## **TEACHING EXPERIENCE**

### ***Teaching Assistant, Biology Department Pennsylvania State University***

- Fall 2016 Biology: Molecules and Cells (lab component)
- Spring 2015 Biology: Function and Development of Organisms (lab component)
- Fall 2013 Biology: Molecules and Cells (lab component)
- Fall 2012 Biology: Molecules and Cells (lab component)

### ***Instructor, Upward Bound Summer Academy***

- Summer 2014 Designed, wrote, and implemented a curriculum for a 7-day course focused on plant genomics, with hands-on lessons on using common bioinformatics tools for sequence analysis

### ***Research Associate, Plant Biotechnology Lab, University of Dhaka***

- 01/2011 – 07/2011 Trained undergraduate and postgraduate students for using common bioinformatics tools and databases in their projects

## **MENTORING EXPERIENCE**

2019	Seth Edwards, graduate student at the University of Missouri
2011	Proyash Roy, undergraduate at the University of Dhaka
2010 – 2011	Sudip Biswas, MS student at the University of Dhaka (currently graduate student at the Texas A&M University)
	(currently graduate student at the University of Warwick)
2009 – 2010	Tarana Sharmin, undergraduate at the University of Dhaka
	(currently lecturer at the University of Dhaka)
2009 – 2010	Fahmida Zaman Irin, undergraduate at the University of Dhaka
	(currently graduate student at the Mid Sweden University)

## **SERVICE & OUTREACH**

09/2019 - present    Assistant Features Editor, *The Plant Cell* journal

### ***Peer reviewer***

Nucleic Acids Research, Bioinformatics, Environmental Sciences Europe, BMC Genomics, New Phytologist, Plant Direct

### ***Outreach***

01/2019	Raspberry Pi Jam at Donald Danforth Plant Science Center [Volunteer]
04/2017	Girl Scout workshop with Graduate Women in Science (GWIS) [Organizer] - utilized craft activities for teaching the rules of genetic code and demonstrated genomic DNA isolation with household products
02/2017	State College Exploration U at Bald Eagle Area High School [Organizer]- showed how light and temperature can affect cytoplasmic streaming in the waterweed <i>Elodea</i>
05/2016	Judge for the 82nd Annual Pennsylvania Junior Academy of Science (PJAS) competition
04/2016	GWIS Girl Scout workshop featuring the science behind carbonated pop rocks candy [Volunteer]
03/2016	State College Exploration U with GWIS at Nittany Valley Charter School [Volunteer] - demonstrated how sound waves are actually pressure waves using Rubens' tube
01/2016	Penn State 'Expanding Your Horizons' outreach with GWIS [Organizer] - demonstrated DNA isolation from different plants and decoding of genetic information hidden in DNA
11/2015	Strawberry DNA isolation outreach for Nittany Valley Charter School [Organizer]
09/2015	Penn State Science U with GWIS [Volunteer] Outreach on astronomical optics, showcasing basic principles of telescopes
09/2014	Penn State Science U event 'Think outside the Beaker' [Volunteer] - outreach explaining mechanism of DNA evolution to grade 6-8 students

### ***Society Memberships***

American Society of Plant Biologists, Global Network of Bangladeshi Biotechnologists